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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,754

09/08/2006

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EXAMINER

MUROMOTO JR, ROBERT H

ART UNIT

PAPER NUMBER

3765

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,754	Applicant(s) STEEMAN ET AL.	
	Examiner BOBBY H. MUROMOTO JR	Art Unit 3765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/27/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The abstract of the disclosure is objected to because the use of redundant language, ("The invention relates to...; The invention further relates to...") and claim language (characterized...) are not proper for US patent practice. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 9 and 10 are objected to because of the following informalities: they are incorrectly drafted as dependent claims. These claims should be rewritten as independent claims including all limitations of any intervening claims. Appropriate correction is required.

For purposes of this examination they have been addressed as de-facto independent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Harpell et al., US patent 4,613,535.

'535 discloses, "Simple composite materials may be constructed and arranged in a variety of forms. It is convenient to characterize the geometries of such composites by the geometries of the fibers and then to indicate that the matrix material may occupy part or all of the void space left by the network of fibers. One such suitable arrangement is a plurality of layers or laminates in which the coated fibers are arranged in a sheet-like array and aligned parallel to one another along a common fiber direction. Successive layers of such coated, unidirectional fibers can be rotated with respect to the previous layer. An example of such laminate structures are composites with the second, third, fourth and fifth layers rotated +45.degree. , -45.degree. , 90.degree. and 0.degree. , with respect to the first layer, but not necessarily in that order. Other examples include composites with alternating layers rotated 90.degree. with respect to each other (paragraph 36)."

"Another technique is to arrange layers or other structures of coated or uncoated fiber adjacent to and between various forms, e.g. ***films, of the matrix material and then to consolidate and heat set (biaxial stretch)*** the overall structure (paragraph 37)."

"The simple elastomeric matrix composites are incorporated into complex composites to provide a rigid complex composite article suitable, for example, as structural ballistic-resistant components, such as helmets, structural members of aircraft, and vehicle panels. The **term "rigid" as used in the present specification and claims, is intended to include semi-flexible and semi-rigid structures** that are capable of being free standing, without collapsing. To form the complex composite, at

least one substantially rigid layer is bonded or otherwise connected to a major surface of the simple composite. The resultant complex composite article is capable of standing by itself and is impact resistant. **Where there is only one layer, the simple composite ordinarily forms a remote portion of the composite article; that is a portion that is not initially exposed to the environment**, e.g., the impact of an oncoming projectile. **Where there is more than one layer, the simple composite may form, for example, a core portion that is sandwiched between two layers**, as is particularly useful, for example, in helmet applications. **Other forms of the complex composite are also suitable**, for example a composite comprising multiple alternating layers of simple composite and rigid layer (paragraph 38)."

"For example, a particularly useful ballistic resistant complex composite comprises a simple composite comprising highly-oriented ultra -high molecular weight polyethylene fiber in an elastomeric matrix on which is **formed at least one layer comprising highly-orientated ultra -high molecular weight polyethylene fiber in a rigid matrix, such as an epoxy resin**. Other suitable materials for **the face sheets** include materials which may be heat resistant, flame resistant, solvent resistant, radiation resistant, or combinations thereof such as stainless steel, copper, aluminum oxides, titanium, etc., (paragraph 39)."

The citations above clearly recite a preformed sheet having at least two mono-layers of unidirectional oriented ultra high molecular weight polyethylene, a binder (elastomeric matrix), the fibers in each sheet are rotated with respect to the adjacent

sheet, and separating film on both outer surfaces (elastomeric film matrix; or face sheet layers of highly oriented ultra-high molecular weight polyethylene fiber in epoxy resin).

The reference uses the term rigid but has defined rigid to include semi-flexible materials. The disclosure clearly falls within the scope of the term "flexible" as no point of reference is given to determine the amount of flexibility to qualify as "flexible". Also since all structural materials claimed are disclosed, it follows that the prior art structure would fall into the claimed term "flexible".

The recited tensile strength and tensile modulus in claim 1 is inherent to the disclosure as the claims further recite the material used (ultra high molecular weight polyethylene) is one and the same as the material cited by the reference.

The reference also discloses that an important part of the prior art invention is that the binder be a thermoplastic elastomer having tensile modulus less than 41,400kPa (41.4 GPa). This discloses the recited "less than about 40MPa" in claim 3.

The film containing embodiment cited above is tensioned and heat set, which would create "biaxial stretching" to the film as recited in claim 5. Additionally, this is a product-by-process limitation with regard to the film's production steps. Once the examiner has shown the prior art to be similar to the claimed product the burden has shifted to the applicant to show a material difference arising from the recited process steps.

The citation clearly discloses multiple mono-layers as claimed.

The citations also clearly discloses an embodiment having multiple sheets that are not linked, i.e. the example that alternates the sheets with metallic plates.

The recited measured material properties: separating film porosity, binder tensile modulus, areal density, strength factor and energy absorption are all considered to be inherent to the prior art.

The MPEP states, "PRODUCT AND APPARATUS CLAIMS - WHEN THE STRUCTURE RECITED IN THE REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS, CLAIMED PROPERTIES OR FUNCTIONS ARE PRESUMED TO BE INHERENT

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of **either anticipation or obviousness has been established**. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

"When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not (MPEP 2112.01)."

Double Patenting

If these rejections are ever overcome there are substantial potential double patenting issues between this application and 11/714,806;11/007,330;10/532,807.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY H. MUROMOTO JR whose telephone number is (571)272-4991. The examiner can normally be reached on 8-530, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Welch can be reached on 571-272-4996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert H Muromoto, Jr./
Primary Examiner, Art Unit 3765